



**Home Theater
Standard 7.1**
Surround
Preamp/Processor

**RS-232 Port: Sending Commands
and Interpreting Data**

RC-5 Remote: Commands

Developer's Reference

Home Theater Standard 7.1

Surround Preamp/Processor

Developer's Reference

v 03.0

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Overview

This document is designed for application developers who want to control the Home Theater Standard 7.1 using an external computer-based device. The document contains five sections:

- 1 Connecting to the RS-232 Port, including the RS-232 connector diagram, and RS-232 Port Protocols, *on page 4*
- 2 RS-232 Commands, *on page 5*
- 3 RS-232 Status Feedback Description, *on page 11*
- 4 RS-232 Status Block Descriptions, showing how the Home Theater Standard 7.1 reports operational status, *on page 11*
- 5 RC-5 Commands, describing the codes used for controlling the Home Theater Standard 7.1 via IR, *on page 18*.

Connecting to the RS-232 Port

A 9-pin RS-232 port is located on the right-hand side of the Home Theater Standard 7.1 back panel. Make sure the clamping screws (or thumbscrews) securely fasten the connection cable from the external computer-based device to the RS-232 port on the Home Theater Standard 7.1.

Refer to the operating manual of your external computer-based device for instructions on connecting to the Home Theater Standard 7.1.

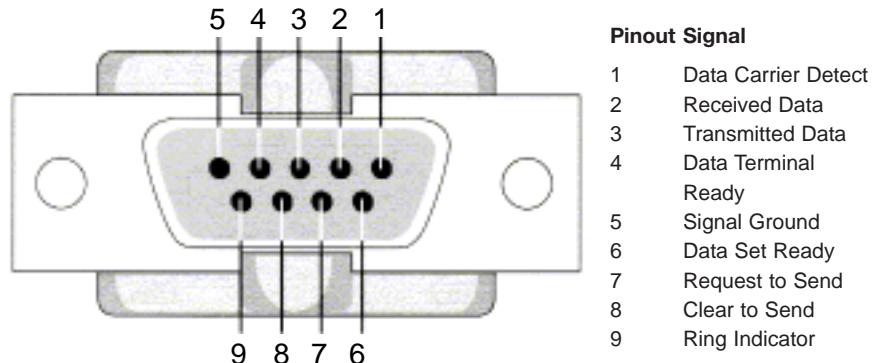
WIRING THE MALE RS-232 PORT CONNECTOR

To wire the male connector, follow these steps:

1. Locate the pin numbers on the male connector plug (not shown).
2. Locate the pinout numbers on the female connector. (See Pinout Signal list below).
3. Wire the male connector, matching the pin numbers on the connector plug to the pinout numbers on the female connector. Only three signals are necessary: 2=Received Data, 3=Transmitted Data, and 5=Signal Ground.

RS-232 PORT FEMALE CONNECTOR

(located on the back panel of the Home Theater Standard 7.1)



RS-232 Port Protocols

The Home Theater Standard 7.1 RS-232 connection port is set to the following protocols:

9600 Baud 8 Data Bits 1 Stop Bit No Parity

RS-232 Commands for the Home Theater Standard 7.1

	COMMAND	RS-232 CODE
MENU COMMANDS	Up Down Left Right Menu Enter Previous	UPZ DWNZ LFTZ RGTZ MENZ ENTZ PRVZ
AUTO-STATUS COMMANDS	Disable Auto Status Enable Auto Status Get Status	ASTDZ ASTEZ STAZ
GENERAL DEVICE SELECT COMMANDS	DVD Device Select ¹ LD Device Select ¹ Satellite Device Select ¹ VCR Device Select ¹ TV Device Select ¹ CD Device Select ¹ Tuner Device Select ¹ Aux1 Device Select ¹ Aux 2 Device Select ¹ Tape Monitor Select ¹	DVDZ LDZ SATZ VCRZ TVZ CDZ TUNZ AU1Z AU2Z TPZ
LEVEL COMMANDS	Up Down Main Speaker Volume Zone 2 Speaker Volume Center Trim Select Surround Trim Select Sub Trim Select Center Speaker Trim Surround Speaker Trim Back Speaker Trim Subwoofer Trim Current Zone Balance Select Balance Zone 2 Balance	UPZ DWNZ 000 - 152 000 - 152 then use UPZ and DWNZ must be on main zone ICVLZ then use UPZ and DWNZ send twice for Back Trim Select must be on main zone IRVLZ then use UPZ and DWNZ must be on main zone ISUBZ 000 - 020, sets -10 to +10 dB 000 - 020, sets -10 to +10 dB 000 - 020, sets -10 to +10 dB 000 - 020, sets -10 to +10 dB then use UPZ and DWNZ 000 -026, sets right off, left +6, through right +6, left off 1/2 dB steps XXBALZ then use UPZ and DWNZ BRLZ

¹ The General Device Select Command is the best choice for normal operation: It always functions on the currently selected zone and engages any configurations set through the Home Theater Standard 7.1 menu.

RS-232 Commands for the Home Theater Standard 7.1, continued

	COMMAND	RS-232 CODE
Level Commands, continued	Mute Current Zone	MUTZ
	Mute Main Zone	MUTMZ
	Mute Zone 2	MUTRZ
	Night Compression	NTCZ
	Normal Compression	NMCZ
	Max Compression	MXCZ
GENERIC ZONE DIRECT SELECT COMMANDS (Works on current zone)	7.1 Input select ²	AMCZ
	Analog Audio Input-1 ²	AS1Z
	Analog Audio Input-2 ²	AS2Z
	Analog Audio Input-3 ²	AS3Z
	Analog Audio Input-4 ²	AS4Z
	Analog Audio Input-5 ²	AS5Z
	Analog Audio Input-6 ²	AS6Z
	Analog Audio Input-7 ²	AS7Z
	Analog Balanced Input ²	AB1Z
	Analog Tape Select ²	ATPAZ
	Analog VCR Select ²	AVCAZ
	Coax-1 Digital Audio Input Select ²	CO1Z
	Coax-2 Digital Audio Input Select ²	CO2Z
	Coax-3 Digital Audio Input Select ²	CO3Z
	Coax-4 Digital Audio Input Select ²	CO4Z
	Coax-5 Digital Audio Input Select ²	CO5Z
	Coax-6 Digital Audio Input Select ²	CO6Z
	Optical-1 Digital Audio Input Select ²	OPT1Z
	Optical-2 Digital Audio Input Select ²	OPT2Z
	Component Video-1 ²	CM1Z
	Component Video-2 ²	CM2Z
	Composite Video-1 ²	CS1Z
	Composite Video-2 ²	CS2Z
	Composite Video-3 ²	CS3Z
	Composite Video-4 ²	CS4Z
	S-Video-1 ²	SV1Z
	S-Video-2 ²	SV2Z
	S-Video-3 ²	SV3Z
	S-Video-4 ²	SV4Z

² Direct Select Commands override the configurations set through the Home Theater Standard 7.1 configuration menus.

RS-232 Commands for the Home Theater Standard 7.1, continued

	COMMAND	RS-232 CODE
MAIN ZONE DIRECT SELECT COMMANDS (Main zone must be on)	Main Analog Audio Input-1 Main Analog Audio Input-2 Main Analog Audio Input-3 Main Analog Audio Input-4 Main Analog Audio Input-5 Main Analog Audio Input-6 Main Analog Audio Input-7 Main Analog Balanced Input Main Analog Tape Select Main Analog VCR Select Main Aux1 Device Select Main Aux2 Device Select Main CD Device Select Main DVD Device Select Main LD Device Select Main Satellite Device Select Main Tape Device Select Main Tuner Device Select Main TV Device Select Main VCR Device Select	AS1MZ AS2MZ AS3MZ AS4MZ AS5MZ AS6MZ AS7MZ AB1MZ TPAMZ VCAMZ AU1MZ AU2MZ CDMZ DVDMZ LDMZ SATMZ TPMZ TUNMZ TVMZ VCRMZ
ZONE 2 DIRECT SELECT COMMANDS	Zone 2 Analog Audio Input-1 ³ Zone 2 Analog Audio Input-2 ³ Zone 2 Analog Audio Input-3 ³ Zone 2 Analog Audio Input-4 ³ Zone 2 Analog Audio Input-5 ³ Zone 2 Analog Audio Input-6 ³ Zone 2 Analog Audio Input-7 ³ Zone 2 Analog Balanced Input ³ AB1RZ Zone 2 Analog Tape Select ³ Zone 2 Analog VCR Select ³ Zone 2 Aux1 Zone 2 Aux2 Zone 2 CD Zone 2 DVD Zone 2 LD Zone 2 Satellite Zone 2 Tape Zone 2 Tuner Zone 2 TV Zone 2 VCR	AS1RZ AS2RZ AS3RZ AS4RZ AS5RZ AS6RZ AS7RZ AB1RZ TPARZ VCARZ AU1RZ AU2RZ CDRZ DVDRZ LDRZ SATRZ TPRZ TUNRZ TVRZ VCRRZ
Note Use Zone 2 Direct Select Commands only when both zones are on.		

³ If only zone 2 is on, use instead the Generic Zone Direct Select Commands, on page 6.

RS-232 Commands for the Home Theater Standard 7.1, continued

	COMMAND	RS-232 CODE
POWER COMMANDS	Power On	1PWRZ
	Power Off	0PWRZ
ZONE SELECT COMMANDS	Main Zone	MANZ
	Zone 2	Zone 2 power toggle if main zone is OFF REMZ
ROOM EQ COMMAND	Room EQ Select	XXX = 000-004 (000 = OFF) (001-004 selects memory 1-4) XXXEQMZ
TRIGGER COMMANDS	Trigger-1	OFF 0TR1Z
	Trigger-1	ON 1TR1Z
	Trigger-2	OFF 0TR2Z
	Trigger-2	ON 1TR2Z
	Trigger-3	OFF 0TR3Z
	Trigger-3	ON 1TR3Z
	Trigger-4	OFF 0TR4Z
	Trigger-4	ON 1TR4Z

RS-232 Commands for the Home Theater Standard 7.1, continued

COMMAND	RS-232 CODE
Mode 1	MS1Z
Mode 2	MS2Z
Prologic	MVZ
Stereo	STZ
Preamp	PAZ
THX	THXZ
Audio Decode Set Mode	000 - 038, sets mode*
	XXXMODZ

** Refer to the list of audio decode modes and corresponding codes on page 10 to set the mode. Modes that do not apply to the current input stream are ignored.*

RS-232 Commands for the Home Theater Standard 7.1, continued

*Audio decode modes
and corresponding codes*

AUDIO DECODE MODE	CODE
Dolby Digital 5.1	000
Dolby Digital 5.1 + THX	001
Dolby Digital 5.1 + THX EX	002
AC3 2/0 Stereo Mode (Pass Mode)	003
AC3 2/0 Pro-Logic II Movie Mode	004
AC3 2/0 Pro-Logic II Music Mode	005
AC3 2/0 Pro-Logic II Matrix Mode	006
AC3 2/0 Pro-Logic II Emulation Mode	007
AC3 2/0 Pro-Logic II Movie +THX Mode	008
AC3 2/0 Pro-Logic II Emulation+THX Mode	009
DTS 5.1 Music	010
DTS 5.1 Movie	011
DTS 5.1 Matrix	012
DTS 5.1 Movie + THX	013
DTS 5.1 Matrix + THX	014
DTS 6.1 Discrete	015
DTS 6.1 Discrete + THX	016
DTS 5.1 Force	017
Stereo Mode (Pass Mode)	018
Pro-Logic II Movie Mode	019
Pro-Logic II Music Mode	020
Pro-Logic II Matrix Mode	021
Pro-Logic II Emulation Mode	022
Pro-Logic II Movie + THX Mode	023
Pro-Logic II Emulation + THX	024
DTS Neo:6 Cinema 6 Mode	025
DTS Neo:6 Music Mode	026
DTS Neo:6 Cinema 6 + THX Mode	027
Party Mode	028
General Admission Mode	029
Front Row Mode	030
On Stage Mode	031
Enhanced Stereo Mode	032
Orchestra Mode	033
Mezzanine Mode	034
Full Range + Sub Mode	035
Monophonic Mode	036
24/96 Decode Mode	038

RS-232 Status Feedback Description for the Home Theater Standard 7.1

The Home Theater Standard 7.1 reports its operational status by transmitting a block of status data via the RS-232 connector. The block is configured as eighteen 8-bit words. The first and last word always contains hexadecimal code 55 to facilitate message framing and synchronization. When the data block is sent through an RS-232 port, each 8-bit word transmitted will also have 1 stop bit associated with it. The exact RS-232 protocol settings for both status and Home Theater Standard 7.1 control are as follows:

9600 Baud 8 Data Bits 1 Stop Bit No Parity

The feedback system is available only through the RS-232 connector. The status can be activated in two ways. The first is to ask for status to be sent by sending the RS-232 command code "STAZ". The second is to enable auto status by sending the RS-232 command code "ASTEZ". Once the auto status command is sent, the Home Theater Standard 7.1 will transmit a status block whenever the status changes. Auto status is disabled by sending the RS-232 command code "ASTDZ". Auto status remains enabled until AC power is removed or turned off. When AC power is reapplied, auto status is disabled.

RS-232 Status Block Descriptions for the Home Theater Standard 7.1

All numeric values described in the following charts are decimal values unless otherwise noted. The description of the eighteen 8-bit words follow.

The values marked Reserved must be ignored during pattern matching.

Word 1: Start of Message

Bit	7	6	5	4	3	2	1	0
Description	0	1	0	1	0	1	0	1

Bit 7 – 0: Hexadecimal 55

Word 2: General Status I

Bit	7	6	5	4	3	2	1	0
Description	System Mute	User Mute	Zone 2 Mute	Current Zone	Input Trigger	Zone 2 Only	Zone 2 Power	Main Power

Bit 7: System Mute 1 = Internal mute is active
Bit 6: Main Mute 1 = Main mute is active
Bit 5: Zone 2 Mute 1 = Zone 2 mute is active
Bit 4: Current Zone 1 = Zone 2 is active Bit 3: Input Trigger 1 = 12V input trigger is active
Bit 2: Zone 2 Only 1 = Only Zone 2 power is on
Bit 1: Zone 2 Power 1 = Zone 2 power is on
Bit 0: Main Power 1 = Main power is on

RS-232 Status Block Descriptions, continued

Word 3: General Status II

Bit	7	6	5	4	3	2	1	0
Description	Menu Mode	Auto Status Enabled	PLL Locked	Trigger 4 On	Trigger 3 On	Trigger 2 On	Trigger 1 On	DSP Running

Bit 7: Menu mode 1 = Menu mode is active
 Bit 6: Auto Status 1 = Auto status enabled
 Bit 5: PLL Locked 1 = PLL is locked (valid digital input signal detected)
 Bit 4: Trigger 4 On 1 = Trigger 4 is on
 Bit 3: Trigger 3 On 1 = Trigger 3 is on
 Bit 2: Trigger 2 On 1 = Trigger 2 is on
 Bit 1: Trigger 1 On 1 = Trigger 1 is on
 Bit 0: DSP Running 1 = DSPs are not reset

Word 4: Current Device

Bit	7	6	5	4	3	2	1	0
Description	Z2 CD3	Z2 CD2	Z2 CD1	Z2 CD0	MN CD3	MN CD2	MN CD1	MN CD0

Bits 7 – 4: Zone 2 Current Device
 Bits 3 – 0: Main Zone Current Device

Devices

0	DVD	5	CD
1	LD	6	TUNER
2	SAT	7	AUX 1
3	VCR	8	AUX 2
4	TV	9	TAPE

Word 5: Volume

Bit	7	6	5	4	3	2	1	0
Description	VOL 7	VOL 6	VOL 5	VOL 4	VOL 3	VOL 2	VOL 1	VOL 0

Bit 7 – 0: Current Volume setting 0 – 152

Word 6: Zone 2 Volume

Bit	7	6	5	4	3	2	1	0
Description	VOL 7	VOL 6	VOL 5	VOL 4	VOL 3	VOL 2	VOL 1	VOL 0

Bit 7 – 0: Current Zone 2 Volume setting 0 – 152

Word 7: Video Input

Bit	7	6	5	4	3	2	1	0
Description	VID IN 7	VID IN 6	VID IN 5	VID IN 4	VID IN 3	VID IN 2	VID IN 1	VID IN 0

Bit 7 – 0: Current Video Input

Video Inputs

1	S-Video 1	7	Reserved
2	S-Video 2	8	Composite Video 1
3	S-Video 3	9	Composite Video 2
4	S-Video 4	10	Composite Video 3
5	Component Video 1	11	Composite Video 4
6	Component Video 2		

RS-232 Status Block Descriptions, continued

Word 8: Main Zone Audio Input

Bit	7	6	5	4	3	2	1	0
Description	MN AUD IN 7	MN AUD IN 6	MN AUD IN 5	MN AUD IN 4	MN AUD IN 3	MN AUD IN 2	MN AUD IN 1	MN AUD IN 0

Bit 7 – 0: Main Zone Audio Input

Audio Inputs

1	Digital: COAX 1	10	Analog: S1
2	Digital: COAX 2	11	Analog: S2
3	Digital: COAX 3	12	Analog: S3
4	Digital: COAX 4	13	Analog: S4
5	Digital: COAX 5	14	Analog: S5
6	Digital: COAX 6	15	Analog: S6
7	Digital: Optical 1	16	Analog: S7
8	Digital: Optical 2	17	Analog: Tape
9	Analog: B1	18	Analog: VCR

Word 9: Zone 2 Audio Input

Bit	7	6	5	4	3	2	1	0
Description	Z2 AUD IN 7	Z2 AUD IN 6	Z2 AUD IN 5	Z2 AUD IN 4	Z2 AUD IN 3	Z2 AUD IN 2	Z2 AUD IN 1	Z2 AUD IN 0

Bit 7 – 0: Zone 2 Audio Input

Audio Inputs

1	Digital: COAX 1	10	Analog: S1
2	Digital: COAX 2	11	Analog: S2
3	Digital: COAX 3	12	Analog: S3
4	Digital: COAX 4	13	Analog: S4
5	Digital: COAX 5	14	Analog: S5
6	Digital: COAX 6	15	Analog: S6
7	Digital: Optical 1	16	Analog: S7
8	Digital: Optical 2	17	Analog: Tape
9	Analog: B1	18	Analog: VCR

Word 10: Loudspeakers / Current Audio Stream

Bit	7	6	5	4	3	2	1	0
Description	Back Enabled	Sub Enabled	Surround Enabled	Center Enabled	Input Stream 3	Input Stream 2	Input Stream 1	Input Stream 0

Bit 7: Back Enabled 1 = Back loudspeaker(s) is(are) enabled

Bit 6: Sub Enabled 1 = Subwoofer is enabled

Bit 5: Surround Enabled 1 = Surround loudspeakers are enabled

Bit 4: Center Enabled 1 = Center loudspeaker is enabled

Bits 3–0: Current Input Stream Mode

Input Stream Modes

1	PCM	7	PCM Analog Input
2	Dolby Digital 2.0	8	Dolby Digital X/Y
3	Dolby Digital 5.1	9	7.1 (8 Channel discrete)
4	DTS 5.1	10	DTS 6.1 ES Matrix
5	24-bit, 96 KHz PCM	11	DTS 6.1 ES Discrete
6	PCM Digital Input	12	DTS 6.1 ES Matrix & Discrete

RS-232 Status Block Descriptions, continued

Word 11: Current Audio Decode Modes

Bit	7	6	5	4	3	2	1	0
Description	CAD 7	CAD 6	CAD 5	CAD 4	CAD 3	CAD 2	CAD 1	CAD 0

Bit 7 – 0: Current Audio Decode Modes

Analog and PCM Decode Modes

- 1 Stereo Mode (Pass Mode)
- 2 Pro-Logic II Movie Mode
- 3 Pro-Logic II Music Mode
- 4 Pro-Logic II Matrix Mode
- 5 Pro-Logic II Emulation Mode
- 6 Pro-Logic II Movie + THX Mode
- 7 Multichannel Input Mode
- 8 Pro-Logic II Emulation + THX Mode
- 9 DTS Neo:6 Cinema 6 Mode
- 11 DTS Neo:6 Music Mode
- 12 DTS Neo:6 Cinema 6 + THX Mode
- 13 Noise Mode
- 14 Classical Mode
- 15 General Admission Mode
- 16 Front Row Mode
- 17 On Stage Mode
- 18 Enhanced Stereo Mode
- 19 Orchestra Mode
- 20 Mezzanine Mode
- 21 Full Range + Sub Mode
- 22 Monophonic Mode
- 23 Analog-only Preamp Mode

Dolby AC3, 5/1 Modes

- 24 Stereo Mode (Pass Mode)
- 25 Pro-Logic II Movie Mode
- 26 Pro-Logic II Music Mode
- 27 Pro-Logic II Matrix Mode
- 28 Pro-Logic II Emulation Mode
- 29 Pro-Logic II Movie + THX Mode
- 30 Pro-Logic II Matrix + THX Mode
- 31 Pro-Logic II Emulation + THX Mode
- 32 was DTS Neo:6 Cinema 6 Mode
- 33 was DTS Neo:6 Cinema 5 Mode
- 34 was DTS Neo:6 Music Mode
- 35 was DTS Neo:6 Cinema 6 + THX Mode
- 36 was DTS Neo:6 Cinema 5 + THX Mode
- 37 Party Mode
- 38 General Admission Mode
- 39 Front Row Mode
- 40 On Stage Mode
- 41 Enhanced Stereo Mode
- 42 Orchestra Mode
- 43 Mezzanine Mode
- 44 Full Range + Sub Mode
- 45 Monophonic Mode
- 46 Analog-only Preamp Mode

Dolby AC3, 5/1 Modes

- 47 Dolby Digital 5.1
- 48 Dolby Digital 5.1 + THX
- 49 Dolby Digital 5.1 + THX EX

Dolby AC3, X/Y Modes

- 65 Dolby Digital 1+1
- 66 Dolby Digital 1/0
- 67 Dolby Digital 3/0
- 68 Dolby Digital 2/1
- 69 Dolby Digital 3/1
- 70 Dolby Digital 2/2

DTS Modes

- 50 DTS 5.1 Movie
- 51 DTS 5.1 Matrix
- 52 DTS 5.1 Movie + THX
- 53 DTS 5.1 Music
- 54 DTS 5.1 Matrix + THX
- 55 DTS 6.1 Discrete
- 56 DTS 6.1 Discrete + THX
- 57 DTS 5.1 Force

24-bit, 96 KHz Modes

- 10 PCM 24-bit, 96 KHz

7.1 (8 Channel Discrete Input) Modes

- 7 7.1

RS-232 Status Block Descriptions, continued

Word 12: Main Zone Balance/Compression Mode

Bit	7	6	5	4	3	2	1	0
Description	Reserved	CMode 1	CMode 0	BAL 4	BAL 3	BAL 2	BAL 1	BAL 0

Bits 4 - 0: Balance Setting 0 – 26

Bits 5 – 6: Compression Mode

Balance Settings

0	Right	Off	9	Left	+2.0	18	Right	+2.5
1	Left	+6	10	Left	+1.5	19	Right	+3.0
2	Left	+5.5	11	Left	+1.0	20	Right	+3.5
3	Left	+5.0	12	Left	+0.5	21	Right	+4.0
4	Left	+4.5	13	Centered	0	22	Right	+4.5
5	Left	+4.0	14	Right	+0.5	23	Right	+5.0
6	Left	+3.5	15	Right	+1.0	24	Right	+5.5
7	Left	+3.0	16	Right	+1.5	25	Right	+6.0
8	Left	+2.5	17	Right	+2.0	26	Left	Off

Compression Modes

1	Max	2	Normal	3	Night
---	-----	---	--------	---	-------

Word 13: Room EQ/Zone 2 Balance

Bit	7	6	5	4	3	2	1	0
Description	Room EQ 2	Room EQ 1	Room EQ 0	BAL 4	BAL 3	BAL 2	BAL 1	BAL 0

Bits 7 – 5: Room EQ Setting

Room EQ Setting

0	Room EQ OFF
1	Room EQ Memory 1
2	Room EQ Memory 2
3	Room EQ Memory 3
4	Room EQ Memory 4

Bits 4 - 0: Balance Setting 0 – 26

Balance Settings

0	Right	Off	9	Left	+2.0	18	Right	+2.5
1	Left	+6	10	Left	+1.5	19	Right	+3.0
2	Left	+5.5	11	Left	+1.0	20	Right	+3.5
3	Left	+5.0	12	Left	+0.5	21	Right	+4.0
4	Left	+4.5	13	Centered	0	22	Right	+4.5
5	Left	+4.0	14	Right	+0.5	23	Right	+5.0
6	Left	+3.5	15	Right	+1.0	24	Right	+5.5
7	Left	+3.0	16	Right	+1.5	25	Right	+6.0
8	Left	+2.5	17	Right	+2.0	26	Left	Off

RS-232 Status Block Descriptions, continued

Word 14: Center Trim

Bit	7	6	5	4	3	2	1	0
Description	Reserved	Reserved	Reserved	CT 4	CT 3	CT 2	CT 1	CT 0

Bits 4 – 0: Center Trim

Trim Settings

0	-10	dB	10	0	dB
1	-9	dB	11	+1	dB
2	-8	dB	12	+2	dB
3	-7	dB	13	+3	dB
4	-6	dB	14	+4	dB
5	-5	dB	15	+5	dB
6	-4	dB	16	+6	dB
7	-3	dB	17	+7	dB
8	-2	dB	18	+8	dB
9	-1	dB	19	+9	dB
	20	+10	dB		

Word 15: Surround Trim

Bit	7	6	5	4	3	2	1	0
Description	Mode 1/2 LED Status	Reserved	Reserved	RT 4	RT 3	RT 2	RT 1	RT 0

Bit 7: Mode 1/2 LED Status 1 = Mode 1 LED is On, 0 = Mode 2 LED is On

Bits 4 – 0: Surround Trim

Trim Settings

0	-10	dB	7	-3	dB	14	+4	dB
1	-9	dB	8	-2	dB	15	+5	dB
2	-8	dB	9	-1	dB	16	+6	dB
3	-7	dB	10	0	dB	17	+7	dB
4	-6	dB	11	+1	dB	18	+8	dB
5	-5	dB	12	+2	dB	19	+9	dB
6	-4	dB	13	+3	dB	20	+10	dB

Word 16: Back Trim

Bit	7	6	5	4	3	2	1	0
Description	Reserved	Reserved	Reserved	BT 4	BT 3	BT 2	BT 1	BT 0

Bits 4 – 0: Back Trim

Trim Settings

0	-10	dB	7	-3	dB	14	+4	dB
1	-9	dB	8	-2	dB	15	+5	dB
2	-8	dB	9	-1	dB	16	+6	dB
3	-7	dB	10	0	dB	17	+7	dB
4	-6	dB	11	+1	dB	18	+8	dB
5	-5	dB	12	+2	dB	19	+9	dB
6	-4	dB	13	+3	dB	20	+10	dB

RS-232 Status Block Descriptions, continued

Word 17: Sub Trim

Bit	7	6	5	4	3	2	1	0
Description	Reserved	Reserved	Reserved	ST 4	ST 3	ST 2	ST 1	ST 0

Bits 4 – 0: Sub Trim

Trim Settings

0 -10 dB	7 -3 dB	14 +4 dB
1 -9 dB	8 -2 dB	15 +5 dB
2 -8 dB	9 -1 dB	16 +6 dB
3 -7 dB	10 0 dB	17 +7 dB
4 -6 dB	11 +1 dB	18 +8 dB
5 -5 dB	12 +2 dB	19 +9 dB
6 -4 dB	13 +3 dB	20 +10 dB

Word 18: End of Message

Bit	7	6	5	4	3	2	1	0
Description	0	1	0	1	0	1	0	1

Bit 7 – 0: Hexadecimal 55

RC-5 Commands for the Home Theater Standard 7.1

The following codes are used for controlling the Home Theater Standard 7.1 via IR.

SYSTEM (HEX)	COMMAND (HEX)	SYSTEM (DEC)	COMMAND (DEC)	RC5 WORD (HEX)	HOME THEATER STANDARD 7.1
1C	1	28	1	3701	SUB
1C	2	28	2	3702	REAR
1C	6	28	6	3706	CENTER
1C	7	28	7	3707	MUTE
1C	B	28	11	370B	DOWN
1C	C	28	12	370C	MENU
1C	D	28	13	370D	RIGHT
1C	E	28	14	370E	ENTER
1C	F	28	15	370F	LEFT
1C	10	28	16	3710	TAPE
1C	11	28	17	3711	UP
1C	12	28	18	3712	PREV
1C	19	28	25	3719	7.1 INPUT
1C	1A	28	26	371A	BALANCE
1C	1B	28	27	371B	B1
1C	1C	28	28	371C	S1
1C	1D	28	29	371D	S2
1C	1E	28	30	371E	S3
1C	1F	28	31	371F	S4
1C	20	28	32	3720	S5
1C	21	28	33	3721	COAX1
1C	22	28	34	3722	COAX2
1C	23	28	35	3723	OPT1
1C	24	28	36	3724	OPT2
1C	27	28	39	3727	TAPE ON
1C	28	28	40	3728	TAPE OFF
1C	29	28	41	3729	S-VIDEO1
1C	2A	28	42	372A	S-VIDEO2
1C	2B	28	43	372B	S-VIDEO3
1C	2C	28	44	372C	S-VIDEO4
1C	2D	28	45	372D	COMPOSITE1
1C	2E	28	46	372E	COMPOSITE2
1C	2F	28	47	372F	COMPOSITE3
1C	30	28	48	3730	COMPOSITE4
1C	33	28	51	3733	MUSIC1
1C	35	28	53	3735	STEREO
1C	37	28	55	3737	VOL ZERO
1C	38	28	56	3738	PWR ON
1C	39	28	57	3739	PWR OFF
1C	3A	28	58	373A	MUTE ON
1C	3B	28	59	373B	MUTE OFF
1C	3C	28	60	373C	VOL +10
1C	3D	28	61	373D	VOL -10
1C	3E	28	62	373E	PROLOGIC
19	0	25	0	3640	MUSIC2
19	1	25	1	3641	DVD
19	2	25	2	3642	LD
19	3	25	3	3643	SAT
19	4	25	4	3644	VCR

RC-5 Commands for the Home Theater

Standard 7.1, continued

SYSTEM (HEX)	COMMAND (HEX)	SYSTEM (DEC)	COMMAND (DEC)	RC5 WORD (HEX)	HOME THEATER STANDARD 7.1
19	5	25	5	3645	TV
19	6	25	6	3646	CD
19	7	25	7	3647	TUNER
19	8	25	8	3648	AUX1
19	9	25	9	3649	AUX2
19	A	25	10	364A	MAIN ZONE
19	B	25	11	364B	ZONE 2
19	C	25	12	364C	USER
19	D	25	13	364D	VCR INPUT
19	E	25	14	364E	TAPE INPUT
19	10	25	16	3650	COMPONENT1
19	11	25	17	3651	COMPONENT2
19	12	25	18	3652	COAX3
19	13	25	19	3653	COAX4
19	13	25	19	3654	COAX5
19	15	25	21	3655	COAX6
19	16	25	22	3656	TRIGGER1 ON
19	17	25	23	3657	TRIGGER1 OFF
19	18	25	24	3658	TRIGGER2 ON
19	19	25	25	3659	TRIGGER2 OFF
19	1A	25	26	365A	TRIGGER3 ON
19	1B	25	27	365B	TRIGGER3 OFF
19	1C	25	28	365C	TRIGGER4 ON
19	1D	25	29	365D	TRIGGER4 OFF
19	1E	25	30	365E	Z2 PWR ON
19	1F	25	31	365F	Z2 PWR OFF
19	20	25	32	3668	MAX DYNR
19	21	25	33	3669	NIGHT DYNR
19	22	25	34	366A	NORM DYNR
1C	14	28	20	3714	EQ OFF
1C	15	28	21	3715	EQ MEM1
1C	16	28	22	3716	EQ MEM2
1C	17	28	23	3717	EQ MEM3
1C	18	28	24	3718	EQ MEM4
19	30	25	48	3670	DIGIT 0
19	31	25	49	3671	DIGIT 1
19	32	25	50	3672	DIGIT 2
19	33	25	51	3673	DIGIT 3
19	34	25	52	3674	DIGIT 4
19	35	25	53	3675	DIGIT 5
19	36	25	54	3676	DIGIT 6
19	37	25	55	3677	DIGIT 7
19	38	25	56	3678	DIGIT 8
19	39	25	57	3679	DIGIT 9
19	3A	25	58	367A	SET MODE**

***The SET MODE command allows the user to set a specific audio decode mode using RC 5 commands. The code is set by sending the unit the SET MODE command, then the two DIGIT commands which define the mode. These three commands must occur in sequence; any command sent after the SET MODE command, other than the DIGIT commands, causes the SET MODE sequence to be reset. Refer to the list of audio decode modes on page 20. Modes that do not apply to the current input stream are ignored.*

RC-5 Commands for the Home Theater Standard 7.1, continued

*Audio decode modes
and corresponding codes*

AUDIO DECODE MODE	CODE
Dolby Digital 5.1	00
Dolby Digital 5.1 + THX	01
Dolby Digital 5.1 + THX EX	02
AC3 2/0 Stereo Mode (Pass Mode)	03
AC3 2/0 Pro-Logic II Movie Mode	04
AC3 2/0 Pro-Logic II Music Mode	05
AC3 2/0 Pro-Logic II Matrix Mode	06
AC3 2/0 Pro-Logic II Emulation Mode	07
AC3 2/0 Pro-Logic II Movie +THX Mode	08
AC3 2/0 Pro-Logic II Emulation+THX Mode	09
DTS 5.1 Music	10
DTS 5.1 Movie	11
DTS 5.1 Matrix	12
DTS 5.1 Movie + THX	13
DTS 5.1 Matrix + THX	14
DTS 6.1 Discrete	15
DTS 6.1 Discrete + THX	16
DTS 5.1 Force	17
Stereo Mode (Pass Mode)	18
Pro-Logic II Movie Mode	19
Pro-Logic II Music Mode	20
Pro-Logic II Matrix Mode	21
Pro-Logic II Emulation Mode	22
Pro-Logic II Movie + THX Mode	23
Pro-Logic II Emulation + THX	24
DTS Neo:6 Cinema 6 Mode	25
DTS Neo:6 Music Mode	26
DTS Neo:6 Cinema 6 + THX Mode	27
Party Mode	28
General Admission Mode	29
Front Row Mode	30
On Stage Mode	31
Enhanced Stereo Mode	32
Orchestra Mode	33
Mezzanine Mode	34
Full Range + Sub Mode	35
Monophonic Mode	36
24/96 Decode Mode	38